

Nov.  
2004

# *Pressman's Toolbox*

## Tools for tight places

*By Frank Bourlon*

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Have you ever had to remove bolts hidden inside a drive cover, such as the ones found on a Suburban press?

It can be a miserable task without the proper tools.

Some of the bolts are obstructed by gears and in some cases the bolts can't even be seen or are so far back inside the cover that standard wrenches or combination wrenches and ratchet sets are difficult to use.

Universal joints don't work in some areas because the angle to the bolt is too abrupt or the joint is too limber to support the socket wrench as you attempt to fit it over the bolt.

### **Wobble works**

Thankfully, there are some tools that can make bolt removal easier. Flex shaft extensions, for example, can work in most areas where the bolts are not very tight.

But the tool that appears to work best for me is wobble extensions, in conjunction with a standard socket set.

The wobble extension looks like a standard extension that extends the reach of a socket. The difference is that the square end of the extension is round on all four sides to allow lateral movement of the socket.

The socket will move laterally 6 degrees, which doesn't sound like much, but when you gang several of these together you can snake the socket into positions quickly and easily, which will dramatically shorten the removal and installation of machine covers and other hard-to-get-to parts.

## Combination options

The gear wrench or combination ratchet wrench is another tool that eases the frustration of removing bolts from tight areas.

The tool that works the best for me is the one that has a standard open-end wrench on one end, while the other boasts a hinged box-end ratchet that can pivot 90 degrees to either side of the handle. That enables the box-end of the tool to fit into a variety of tight spaces.

The box-end of this wrench is geared so that it takes very little resistance to get it to ratchet. That means you don't have to hold the bolt still while trying to ratchet the wrench to tighten the bolt.

Another very useful function of this tool is that it only takes a 5-degree movement in order to cause the wrench to ratchet, which means that the space needed to operate the wrench is much less than a standard ratchet.

## Checking pliers

When faced with trying to get into areas inaccessible by any other method, use bent-nose pliers. These tools are similar to standard needle-nose pliers but the pliers' end is bent to either a 45- or 90-degree angle.

Once, I had to remove a Thomas coupling that was connected very close to the press unit, which made it impossible to hold the locknuts that held the shim plates to the outside hub of the coupling.

Using the bent-nose pliers, I was able to hold the locking nuts still, while using a standard ratchet to remove the bolts to which the nuts were attached.

A set of pry bars that come to a point at one end are also useful to align the shim pack whenever it is time to reinstall the Thomas coupling.

Removing spline couplings on Suburban and Community press units is normally done with a feather key bar or other bars that can provide enough leverage to slide the coupling along the spline shaft.

Sometimes the force to move the spline coupling can be so great that pry bars will not work. Since these couplings can set as close as 1.5 to 2 inches from the frame, it is difficult to find a tool that will move the coupling, especially if the coupling has become rusted.

In these cases, try a short hydraulic ram. The ram can provide as much as 10 tons of force needed to move the coupling and is only 1.25-inches thick.

## Removing snap rings

Snap rings can also be a problem to remove. I have tried just about every type of snap ring pliers that exist. None of them seems to work very well.

Wire is my answer to this problem. I use the snap ring pliers to lift one edge of the snap ring high enough to clear the groove that it sets in, and then I use a pocketknife to wedge the end of the snap away from the groove.

While holding the end of the snap ring out of the groove with the knife, I run a small wire through the hole in the end of the snap ring. The wire prevents the snap ring from snapping back into its groove and gives you the ability to lift the snap ring gently and work the rest of the snap ring from its groove with a screwdriver.

These tools will dramatically reduce the disassembly and assembly time of machinery covers and other press parts, which will make your job easier, thus reducing your stress level.

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